104-2-4/38

AUTHOR: Imbritskiy, M.I., Engineer.

TITLE: Damage to steam and water fittings in power stations. (Povrezhdeniya parovodyanoy armatury na elektrostantsiyakh.)

PERIODICAL: "Elektricheskie Stantsii" (Power Stations), 1957, Vol.28, No.2, pp. 21 - 25 (U.S.S.R.)

ABSTRACT: Although the quality of fittings produced has recently improved some of them are still not good enough. In the power stations of the Moscow system in 1955 there were 11 accidents and 98 cases of scrapping equipment because of damage to fittings. In one high pressure power station in the first year of operation two boilers had to be stopped 11 times. This all occurred because of defects of design, erection and operation and defects associated with poor quality repairs. The article describes the defects of design with particular reference to steam valves and explains with drawings how these are being corrected. Defects associated with poor quality of repairs are then discussed - this is mainly concerned with the organisation of repair work. Defects of erection and operations are also described. It is concluded that fittings factories should improve the quality of production of control and safety valves taking advantage of the experience of power stations. Power systems should organise the centralised repair of fittings at

Card.1/2

104-2-4/38

Damage to steam and water fittings in power stations.   (Cont.)

special repair works or in power station workshops. Special
designs of fittings repair workshops should be got out. Special
courses on the repair of fittings should be instituted in power
systems. Existing instructions on the repair of fittings are
largely inadequate and they should be rewritten. If fittings
appear to be undamaged they should not be dismantled for insp-
ection before erection.

There are 6 figures.

AVAILABLE:

Card 2/2

Imbritskiy, M.I.

IMBRITSKIY, M.I., inzh.

Increasing the reliability of high-pressure regulating feed valves.
Elek.sta., 28 no.10:21-25 '57.   (MIRA 10:11)
                    (Boilers--Safety appliances)

IMBRITSKIY, M.I.

Making pipe fittings more reliable. Vod. i san. tekh. no.3:10-15
Mr '58.
(MIRA 11:3)

(Pipe flanges)   (Pipe fittings)

IMBRITSKIY, M.I.,inzh.

Safety valves for steam boilers. Bezop.truda v prom. 2 no.4:35-36
Ap '58.   (MIRA 11:4)
            (Boilers--Safety appliances)

IMBRITSKIY, M.I.,inzh.

Increasing the reliability of pipe fittings. Blek.sta. 29
no.11:67-71 N '58.   (MIRA 11:12)
                        (Valves)

8(5)   SOV/91-59-3-12/22

AUTHOR: Imbritskiy, M.I., Engineer

TITLE: Gasket Sealings for Fittings in Power Plants
               (Sal'nikovyye uplotneniya armatury na elektro-
               stantsiyakh)

PERIODICAL: Energetik, 1959,   Nr 3, pp 21-25   (USSR)

ABSTRACT: The author describes various types of gasket sealings
               currently used for fittings used in Soviet power
               plants. The sealings most often used consist of a
               mixture of 60-70% graphite and 40-30% asbestos flakes,
               and are called "Pushonka". Other popular sealings are
               of graphite and asbestos rings placed alternately and
               pressed. In conclusion, the author gives practical
               instructions for installing new packings. There are
               5 diagrams.

Card 1/1

IMBRITSKIY, Matvey Iosifovich; RATNER, A.V., red.; DUB, B.I., red.;
BORUNOV, N.I., tekhn. red.

[Brief handbook on pipelines and fittings]Kratkii spravochnik
po truboprovodam i armature. Moskva, Gosenergoizdat, 1962.
271 p.   (MIRA 15:9)
                          (Pipe fitting)

IMERITSKIY, Matvey Iosifovich; NIKITIN, Anatoliy Pavlovich; ZHILIN,
    V.G., red.; FRIDKIN, L.M., tekhn. red.

[Handbook on piping and fittings for thermal electric
power plants]Spravochnik po truboprovodam i armature dlia
teplovykh elektricheskikh stantsii. Moskva, Gosenergoizdat,
1962. 287 p.   (MIRA 15:9)
(Electric power plants--Equipment and supplies) (Pipe)

IMBRITSKIY, M.I.; ZBOROVSKAYA, R.L., inzh., red.

[Design and installation of the fittings of blocks with
increased steam parameters] Konstruktsiia i montazh ar-
matury blokov na povyshennye parametry para; iz opyta
energeticheskogo stroitel'stva. Moskva, Orgenergostroi.
No.6. 1963. 70 p.   (MIRA 17:5)

IMBRITSKIY, Matvey Iosifovich; MELEYEV, A.S., red.; BUL'DYAYEV, N.A.,
        tekhn. red.

[Repair of fittings] Remont armatury. Izd.2., perer. i dop.
Moskva, Gosenergoizdat, 1963. 327 p.   (MIRA 16:12)
  (Electric power plants--Equipment and supplies)

IMBRITSKIY, M.I., inzh.

Modern high-pressure steam and water equipment. Energetik 11
no.11:29-37 N '63.   (MIRA 16:11)

VUKALOVICH, M.P.; GROMOV, N.K.; IMERITSKIY, M.I.; KARTOSHKIN,
    M.D.; KOBRINA, R.B.: LEONOVA, A.Ya.; TROYANSKIY, Ye.A.;
    MANUYLOV, P.N.; SHUKHER, S.M., red.

[Heat engineer's handbook] Spravochnaia knizhka teplo-
tekhnika. Izd.2., perer. i dop. Moskva, Energiia, 1964.
287 p.   (MIRA 17:12)

ZAKHARENKO, I.P., kand.tekhn.nauk; IMBIRSKIY, V.I.

Processing laminated and glass-reinforced plastic materials by a
hard-alloy instrument. Bum. i der. prom. no.1:29-33 Ja-Mr '64.
(MIRA 17:6)

IMBS, P. G.

Imbs, B. G. "Standardized feeding of young sheep," Trudy Stavrops.-kh. in-ta, Issue 3, 1948, p. 161-98

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

KINS, B.G., dots., kand. sel'skokhozyaystvennykh nauk.

   Effect of a high-protein diet on productivity in sheep. Zhivotovodstvo
   20 no.8:24-30 Ag '58.   (MIRA 11:10)

   1.Stavropol'skiy sel'skokhozyaystvennyy institut.
           (Sheep--Feeding and feeding stuffs)

IMES, B. G., Doc Agr Sci -- (diss) "Protein requirements for the
Soviet merinos type of sheep." Moscow, 1960. 27 pp; (All-Union
Order of Lenin Academy of Agricultural Sciences im V. I. Lenin,
All-Union Scientific Research Inst of Animal Husbandry);
180 pp; price not given; (KL, 60-60, 135)

IMBS, B.G., prof.; SALMIN, I.P., prof.

[Use of carbamide in animal husbandry] Primenenie karbamida
v zhivotnovodstve. Stavropol', Stavropol'skoe knizhnoe
izd-vo, 1964. 15 p.   (MIRA 18:8)

IMBS, Boguslaw, dr. (Olsztyn)

Principal questions of the organisation of the Polish food industry. Elelm ipar 17 no.4:127-128 Ap '63.

IMES, Boguslaw, dr.

Organizational problems in the food industry of Poland. Elelm ipar
17 no.10:301-307 O '63.

1. Mezogazdasagi Foiskola, Olsztyn, Lengyel Nepkoztarsasag.

WANKOWICZ, Regina; IMBS, Daniela

A case of adenovirus type 4 infection with a severe clinical
course. Pediat. Pol. 40 no.3:301-303 Mr '65

1. Z Kliniki Terapii Chorob Dzieci Akademii Medycznej w War-
szawie (Kierownik: prof..dr. med. H. Brokman) i z Zakladu
Wirusologii Panstwowego Zakladu Higieny w Warszawie (Kierow-
nik: prof. dr. med. F.Przesmycki).

USSR / Plant Physiology. Photosynthesis.   I

Abs Jour   : Rof Zhur - Biol., No 1, 1959, No 1265

Author   : Skripchinskiy, V. V.; Imbs, G.; Kosikova, P. G., and
              Lodokhovich, M. M.
Inst   : Not given
Title   : Carotin and Chlorophyll Content in the Leaves of Some Fodder
              and Cereal Grass Plants of Stavropol'ye During Various
              Stages of Development.

Orig Pub   : Materialy po Izuch. Stavropol'sk. Kraya, Fasciclo 8, 61-72,
              1956.

Abstract   : Studies of the dynamics of chlorophyll and carotin in the
              leaves of crested wheat grass, arhizomatous wheat grass,
              awnless bromegrass, dew grass, meadow timothy, tall oat-
              grass, bulbous barley, cultivated and wild rye, and winter
              rye and wheat, under conditions of Stavropol'skiy Kray.
              The increase or decrease in the amount of green pigments

Card 1/2

was observed not to be necessarily accompanied by an in-
crease or decrease in the amount of carotin. In arhizoma-
tous wheat grass, bulbous barley, and perennial forms of
rye, the maximum quantity of chlorophyll was present during
the stages of tillering, tube-formation and earing; in the
crested wheat grass and meadow timothy the chlorophyll con-
tent increased until the stage of tube-formation. The max-
imum content of carotin (in milligrams/kg) was observed in
winter wheat (663), bulbous barley (559), perennial forms
of rye (505-580), dew grass (542), tall oatgrass (510),
crested wheat grass (216-402). Bibliography with 15 titles.
-- N. S. Gorolkina.

Card 2/2

IMEDADZE, M.B.

Evergreen buckthorn (Rhamnus alaternus L.) in Tiflis. Biul.Glav.bot.sada
no.14:96-97 '52.   (MLRA 6:5)

1. Tbilisskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR.
                         (Tiflis--Buckthorn)

IN*W/DZF, M.B.

Manna ash (Fraxinus ornus L.) as one of the best deciduous
ornamental species in the landscape gardening of T'lis.
Vest. Tbil. bot. sada. no.48:27-35 '62.   (MIRA 17:5)

IMEDADZE, N.V.

Some psychological aspects of studying the lexicology of the
Russian language in Georgian schools. Truty Inst.psikhol. AN
Gruz.SSR 14:91-100 '63.   (MIRA 18:4)

IMEDADZE, N.V.

Psychological analysis of the process of simultaneous mastery of two
languages. Trudy Inst.psikhol. AN Gruz. SSR 11:255-285 ' 57.
                                            (MIRA 12:3)
        (Bilingualism) (Children--Language)

IMEDADZE, N.V.

Psychological nature of early bilingualism [with summary in English].
Vop. psikhol. 6 no.1:60-68 Ja-F '60.   (MIRA 13:6)

1. Institut psikhologii AN GruzSSR, Tbilisi.
          (Bilingualism--Psychological aspects)

IMEDADZE, V. V.

"Investigatic.. of the Systems of Automatic Control and of the Control of Subsi-
diary Mechanisms in Print Rolling Mills and Heavy Type Excavators,"

Dissertation for the Degree of Candidate of Technical Sciences, defended at
Institute for Automation and Remote Control of the AS USSR,   25 June 1953,
(Elektrichestvo, 1958, Nr 4, pp. 87-88)/

Imedadze, V.V.

IMEDADZE, V.V.

Electrification of an overhead monorail conveyor for carrying
manure outdoors. Biul. nauch.-tekh. inform. po elek. sel'khoz.
no.1:18-20 '56.   (MIRA 10:9)
              (Conveying machinery)   (Farm equipment)

IMEDADZE, V.V.

Using real frequency analysis for the approximate evaluation
of the quality of automatic control systems..[with summaries in
Russian and English]. Avtomatyka no.2:1-10 '57.   (MLRA 10:8)

1.Gruzins'kiy naukovo-doslidniy institut mekhanizatsii i
elektrifikatsii sil'skogo gospodarstva..,
        (Automatic control) (Frequency measurements)

9, 7100

S/194/61/000/010/032/082
D222/D301

AUTHORS: Imedadze, V.V. and Paylodze, I.P.

TITLE: Registers and binary counters with ferrites and
                  transistors

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
                  no. 10, 1961, 32, abstract 10 B215 (Elektronikis,
                  avtomatikisa da telemekhanikis institutis shromebi.
                  Tr. In-ta elektroniki, avtomatiki i telemekhaniki
                  AN GruzSSR, 1960, 1, 65-91)

TEXT: Circuits of distributors and registers with ferrites
and transistors, constructed without using blocking pulses are des-
cribed. In these circuits the transistors are connected into the
coupling circuits so that the process of transmitting information
to the next digit is different from earlier circuits. The circuits
are analyzed for the cases when the shifting windings of all digits
are driven sequentially and in parallel. Oscillograms of all basic

Card 1/2

Registers and binary counters...   S/194/61/000/010/032/082
D222/D301

values illustrating the operation of a binary counter are given.
The theoretical analysis and experimental data agree well. 16
figures. 4 references. /Abstracter's note: Complete translation_7

Card 2/2

9.4/20

S/194/61/000/010/035/082
D256/D301

AUTHORS: Imedadze, V.V. and Lekvinadze, A.G.

TITLE: Performance analysis of a thyratron commutator-
               switch

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
               no. 10, 1960, 5, abstract 10 V37 (Tr. In-ta elek-
               troniki avtomatiki i telemekhan. AN GruzSSR, 1960,
               1, 93-103)

TEXT: An analysis is presented of a thyratron switching
arrangement under active- and inductive-loads, and it is shown that
the switching speed is considerably higher for a purely active load
than for a mixed active-inductive one. A system of switching el.-
magn. devices was investigated and a max. switching speed of 100-
150 cs/sec was reached. The results of the experiments were found
to be in full agreement with the analysis. 9 figures. 4 references.
/ Abstracter's note: Complete translation 7

Card 1/1

IMEDADZE, V.V.; SAAKYAN, E.A.; CHAKHIROV, N.S.; FILIMONOV, V.N.

Correlation recorder using transistor and ferrite cells. Trudy
Inst. elek., avtom. i telem. AN Grus. SSR 3:35-46 '62. (MIRA 16:5)
(Information theory)

DOMANITSKIY, S. M.;   IMEDADZE, V. V.; ~~LEKVINADZE, A. G.~~   *Ts in D A D 2 E, Sh.A.*

"Digital Optimal System of Programme Control and Its Application
for Blooming Mill Press Device. "

Paper to presented at the IFAC C^{O}ngress, to be held in
Basel, Switzerland, 27 Aug to 4 Sep 63

IMEDADZE, V.V.; SAAKYAN, E.A.; CHAKHIROV, N.S.

Statistical methods for determining the dynamic characteristics
of industrial objects. Trudy Inst. elek., avtom. i telem. AN
'4:67-74 '63.   (MIRA 17:5)

L 00470-65

ACCESSION NR: AT5014331   UR/0000/64/000/000/0071/0084

AUTHOR: Imedadze, V. V.; Saakyan, E. A.; Melikhova, Ye. V.

TITLE: Determination of the dynamic characteristics using a discrete correlation computer

SOURCE: AN GruzSSR. Institut elektroniki, avtomatikii telemekhaniki. Elementy vychislitel'noy tekhniki i mashinnyy perevod (Elements of computer technology and machine translation). Tiflis, Izd-vo Metsniyereba, 1964, 71-84

TOPIC TAGS: correlation function, data processing system, data correlation

ABSTRACT: The article discusses the various computer methods of determining the correlation function by means of a convolution-type integral of the form

$$R_{yx}(\epsilon) = \int_0^\infty R_{xx}(\epsilon - \sigma)k(\sigma)d\sigma,$$

where R_{yx} is the mutual correlation function, R_{xx} the autocorrelation function, and $K(\sigma)$ the impulse transfer function of the system. It is shown that the combined use of the Fourier transformation and of a special computer (discrete correlograph) offers many advantages over other methods. The correlograph itself was developed at the Institut elektroniki, avtomatiki i telemekhaniki (Institute of

Card 1/2

L 00470-66
ACCESSION NR: AT5014331

Electronics, Automation, and Telemechanics) AN Gru:SSR and was described elsewhere
by two of the authors (Imedadze and Saakyan, with N. S. Chakhirov, Diskretnyy kor-
relograf [Discrete Correlograph], Izdaniye TsITEIN, No. 22, Moscow, 1961). The
processing of the primary information for the determination of the impulse transfer
function with this correlograph consists of three stages. The first involves the
determination of the correlation functions from the primary information. The sec-
ond consists of calculating the spectral densities, the real frequency character-
istic, and the imaginary frequency characteristic of the system. The third stage
consists of finding the transfer function itself. The mathematics and the re-
quired computer programming are described in some detail, and some illustrative
examples pertaining to the control of a blast furnce are included. The calculation
results were in satisfactory agreement with the actual data. Orig. art. has 13
figures and 16 formulas.

ASSOCIATION: none

SUBMITTED: 14Aug64   ENCL: 00   SUB CODE: DP

NR REF SOV: 006   OTHER: 000

Card 2/2

L 47011-65   EWT(d)/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(l)   Po-4/Pa-4/Pf-4/Pg-4/
Pae-2/Pu-4/Pk-4/Pl-4   IJP(c)   WW/GS/BC
ACCESSION NR: AT5009733

UR/0000/65/000/000/0127/0135

AUTHOR: Imedadze, V. V.; Saakyan, E. A.

TITLE: Calculation of the dynamic characteristics of objects under control using a discrete correlograph

SOURCE: Analiticheskiye samonastraivayushchiyesya sistemy avtomaticheskogo upravleniya (Analytical adaptive control systems). Moscow, Izd-vo Mashinostroyeniya, 1965, 127-135

TOPIC TAGS: correlograph, dynamic characteristic calculation, autocorrelation calculation, mutual correlation calculation, transfer function calculation, Fourier transform application

ABSTRACT: Recently, statistical methods have been developed for the determination of the dynamic characteristics of controlled objects (see, e.g., V. V. Solodovnikov, A. S. Uskov, Statisticheskiy analiz ob"yektov regulirovaniya, Mashgiz, 1960) enabling one to calculate the necessary characteristics of the system from the records of the input and output quantities collected during normal operation. These methods are usually either based

Uskov, Statisticheskiy analiz ... ... from the records of the input and
calculate the necessary characteristics of the system from the records of the input and
output quantities collected during normal operation. These methods are usually either based
on or lead to the solution of the integral

$$R_{yx}(\tau) = \int_0^\infty K_{xx}(\tau - \theta) k(\theta) d\theta. \qquad (1)$$

Card 1/2

L 42011-65

ACCESSION NR: AT5009733

where $R_{yx}(\tau)$ is the autocorrelation input function ; $R_{yx}(\tau)$ is the mutual correlation function
between the input and output of the system, and $k(\theta)$ is the pulsed transfer function. This
equation can be solved by means of Fourier transforms (V. V. Solodovnikov, A.S. Uskov,
Avtomatika i telemekhanika, 1959, no. 12), and the necessary calculative manipulations can
be carried ...

...example of a boiler. Above input represents the gas consumption, and the output the vapor production of the boiler. Orig. art. has: 9 formulas and 11 figures.

ASSOCIATION: none

SUBMITTED: 15Dec64   ENCL: 00   SUB CODE: IE, DP

NO REF SOV: 007   OTHER: 001

Card 2/2

L 01038-67   EWT(d)/T   IJP(c)   GD

ACC NR: AT6015125   (A)   SOURCE CODE: UR/0000/65/000/000/0034/0039

$\mathcal{3}\,\mathcal{7}$

AUTHOR: Imedadze, V. V.; Saakyan, E. A.; Melikhova, Ye. V.

$\mathcal{33}$

$\mathcal{B+1}$

ORG: none

TITLE: Some problems in evaluation of accuracy of correlation functions

SOURCE: AN GruzSSR. Institut elektroniki, avtomatiki i telemekhaniki. Skhemy avtomaticheskogo upravleniya (Automatic control circuits). Tiflis, Izd-vo Metsniyereba, 1965; 34-39

TOPIC TAGS: correlation function, correlation statistics

ABSTRACT: Further improvement in the methods of calculating correlation functions with the source information in discrete form, should go along these two directions:
(1) Development of methods for evaluating the error depending on the number of points of source information; with knowledge of the process frequency spectrum available, the highest-frequency region should contain 10—40 points; (2) With a sufficiently large number of source-information points, the accuracy of calculation of correlation function should be determined. The present article places particular emphasis on the

Card 1/2

L 01038-67

ACC NR: AT6015125   4

case of a relatively small number of the source-information points. A formula for
the centered autocorrelation function indicates two sources of errors: (a) level
quantization and (b) determination of mathematical expectation. If the quantization
interval is $q = 1/31$ maximum level, the quantization error is negligible. For
practical purposes, it is recommended that estimation of the mathematical expectation
be restricted to the second decimal place. With the above provisions, the correlation
functions of interdependent parameters (30—70 points) of the rolling process at the
Pervoural'sk Pipe Plant were estimated on a DK-1 digital correlograph developed by
the Institute of Electronics, Automatics and Telemechanics, AN GruzSSR. Orig. art.
has: 35 formulas.

SUB CODE: 12, 09 / SUBM DATE: 29Sep65 / ORIG REF: 005

awm

Card 2/2

IMEDASHVILI, K.A.

Dynamics of certain differential transmissions. Soob.AN Gruz.SSR. 17 no.1:27-34 '56.   (MLRA 9:8)

1. Tbilisskiy institut inshenerov shelesnodoroshnogo transporta imeni V.I. Lenina. Predstavleno deystvitel'nym chlenom Akademii K.S. Zavriyevym.
              (Power transmission) (Mechanical movements)

SOV/124-57-9-9963

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 9, p 14 (USSR)

AUTHOR: Imedashvili, K. A.

TITLE: Kinematic Peculiarities of Some Planetary Transmissions
            (Osobennosti kinematiki nekotorykh planetarnykh peredach)

PERIODICAL: Sb. tr. Tbilisk. in-ta inzh. zh.-d. transp., 1956, Nr 30, pp 156-160

ABSTRACT: The magnitude of the gear ratio (in terms of absolute motion)
            between the drive and the satellite gears is investigated for various
            configurations of planetary mechanisms.
                                                            S. G. Kislitsin

Card 1/1

IMEDASHVILI, K.A. (Moskva)

Dynamics of a differential gear in composite systems.
Mashinovedenie no.6:24-34 '65.

(MIRA 18:11)

KHIDROGLUYAN, Sh.A.; IMEKCHYAN, N.M.

> Regeneration of the spinal cord in rats. Izv. AN Arm. SSR.
> Biol. nauki 17 no.4:11-20 Ap '64.   (MIRA 17:6)
>
> 1. Institut fiziologii imeni L.A. Orbeli, AN Armyanskoy SSR.

IMELIK, O. I.

 IMELIK, O. I. -- "Changes in Respiration in Muscular Work as Investigated
    by the Pneumotachographic Method." Tartu State U. Tartu, 1955.
    (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No 1, 1956

Imel'kova, N. I.

USSR/Biology - Plant physiology

Card 1/1   Pub. 22 - 51/54

Authors   : Shestakov, A. G.; Ivanova, G. F.; and Imel'kova, N. I.

Title   : Sensitivity of plants to the effect of radiophosphorus during various development phases

Periodical   : Dok. AN SSSR 102/5, 1043-1046, Jun 11, 1955

Abstract   : Data are presented on the sensitivity of oat plants toward the effect of radiophosphorus applied during various phases of development. Results are described. One USSR reference (1955). Tables.

Institution : The K. A. Timiryazev Agricult. Academy, Moscow

Presented by : Academician A. L. Kursanov, February 14, 1955

STEPANOV, V.N., prof. doktor sel'skokhoz. nauk; IMENDAYEVA, L.V., aspirantka.

Utilization by plants of nutrients stored in seeds. Izv.
RSKHA no.1:82-91 '65   (MIRA 19:1)

1. Kafedra rasteniyevodstva Moskovskoy sel'skokhozyaystvennoy
ordena Lenina akademii imeni Timiryazeva.

L 50200-65   EWG(j)/EWT(m)

AM5014983 _IMENDAYEVA, M. V._   BOOK EXPLOITATION   UR/621.039.538.7

B. R. Bergel'son, and G. A. Zorikoyev.

Handbook on protection from radiation of extended sources (Spravochnik po zashchite ot izlucheniya protyazhennykh istochnikov) Moscow, Atomizdat, 1965. 173 p. illus., biblio., tables. Errata slip inserted. 3000 copies printed.

TOPIC TAGS: buildup factor, attenuation function, dose data, radiation source parameter, radiation protection, radiation shielding, radiation source, shielding material, nuclear radiation

PURPOSE AND COVERAGE: This book is intended for engineers-physicists specializing in the calculation of reactor shielding, and for the engineering and scientific community working with radioactive sources. The book gives information of physical and graphic, and tabulated data, necessary for calculating the shielding against radioactive radiation of extended sources of various geometries. The book is based on data published in Soviet and other literature and on that obtained by the present authors. The authors thank M. V. Imendayeva.

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L 50200-65
AM5014983

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Attenuation Within the Shielding Against Radiation from External Sources — 5

General — 5
  1. Point and linear sources — 5
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  3. Volume sources — 13
  4. Radiation yield from sources of various geometries — 19

Graphs for Attenuation Functions — 21

Supplement [parameters, etc.] — 132

References — 174

AVAILABLE: Library of Congress

Card 2/3 _____ Submitted 14 Jan 65

IMENICI, M. I., GOPITKEVICH, M. P., SOBCHUK, B. A. (USSR)

"The Influence of ATP and Insuline on the Carbohydrate
Metabolism of Ehrlich ascite Cells and Nucleated
Erythrocytes (read by title)."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 August 1961

IMENITOV, B. R.

16-77. High-Temperature Metallurgical Furnace With Injector-Type Burners for Preheated Air and Gas of Low Heating Value. K. M. Holeman and B. R. Imenitov. *Engineers' Digest (American Edition),* v. 3, May '48, p. 228-229.

In high-temperature reheating furnaces excellent results are obtained with injector-type burners in which the combustion air is introduced into the gas stream. In this connection the use of a gas of low calorific value is of special interest. (Abstract from *Stal,* no. 4, 1948, p. 124-130.)

METALLURGICAL LITERATURE CLASSIFICATION

4667. CONTINUOUS FURNACE HEATED BY LOW CALORIFIC GAS. Vashkov, B.
(Ste1 (Stal, Moscow), 1953, (3), 271-276). Continuous furnace design for
working on poor gas is discussed. Best results are at present being obtained
with blast furnace gas-fired types having ceramic and metal recuperators for
air and gas, respectively, and injector burners. For gas with calorific
value 1500-2200 kcal/cu.m only the air requires a recuperator. Such research
is to done on the improvement of injection burner design, increasing the range
of automatic control to include gases of 2200 kcal/cu.m, and metal
recuperators must be produced for heating air to 600°C by combustion products
at 1100°C.

L.A.L.

IMENITOV, B. R., (Can.Tech.Sci.)

"The Use of Low-heat Gas, Burned in Ejector Burners in Warmed Air and Gas, for Heating High-Temperature Furnaces"

(Theory and Practice of Gas Combustion; Transactions of a Scientific and Technical Meeting) Leningrad, Gostoptekhizdat, 1958. 343 p.

S/879/62/000/000/007/0&3
D234/D308

AUTHOR: Imenitov, L. B. (Moscow)

TITLE: Application of the theory of functions of a complex vari-
           able to the solution of statically indeterminable problems
           of momentless theory of a spherical shell

SOURCE: Teoriya plastin i obolochek; trudy II Vsesoyuznoy konfe-
           rentsii, L'vov, 15-21 sentyabrya 1961 g. Kiev, Izd-vo
           AN USSR, 1962, 94-96

TEXT: The author considers an elastic spherical shell with a hole,
clamped along the edge, with a concentrated force acting at a cer-
tain point of the shell. In order to avoid the inconsistency in the
boundary conditions, the author divides them into tangential and
non-tangential conditions, and proposes that the former should be
adjusted with the aid of momentless theory, the latter with the
aid of the edge effect. It is stated that this possibility has been
verified by expanding the unknown stress and displacement into se-
ries; it was found that an iteration process can be constructed in

Card 1/2

IMENITOV, L.B. (Moskva)

Problem of a spherical shell with a nonreinforced hole. Insh.
zhur. 3 no.1:93-99 '63.

(MIRA 16:10)

(Elastic plates and shells)

KOROVIN, K. A.,   IMENITOV, V. R.

USSR

"Hydraulic Packing", Tsvet. Met. 14,
No. 10-11, Oct. -Nov. 1939.

Report No. U-1506, 4 Oct. 1951

IMENITOV, V. R.

PA 66T101

UMM/Mines and Mining
    Mining Methods
    Construction, Underground

"Exploitation of the Upper Horizons of the Sokol'nyy Mine," V. R. Imenitov, Mining Engr, 7 pp

"Gor Zhur" No 4

Describes in detail methods of working the upper strata of the Sokol'nyy mine, with several cross-sectional diagrams of the mine construction. Lists suggested changes in the method of operation.

Apr 1946

1C

66T101

IMENITOV, V.R.

1. IMENTOV, V.R.,

2. USSR (600)

4. Technolog y

7. Highly productive systems of working wide veins. Moskva, Metallurgizdat, 1951

9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

IMENITOV, V. R.

IMENITOV, V. R. -- "Survey of Highly Productive Methods for the Underground Mining of Thick Deposits with Solid Ores." Sub 3 Mar,52, Moscow Inst of Nonferrous Metals and Gold Imeni M. I. Kalinin (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Vechernaya Moskva, January-December 1952

IMENITOV, Vladimir Rafailovich; AGOSHKOV, M.I., retsenzent; KASSYURA,
K.G., gornyy inzhener, retsenzent; SIDOROVSKIY, N.S., redaktor
PARTSEVSKIY, V.N., redaktor; EVENSON, I.M., tekhnicheskiy redaktor.

[Methods of working thick ore deposits.] Sistemy razrabotki
moshchnykh rudnykh mestorozhdenii. Moskva, Gos.nauchno-tekhn.
izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 311 p.
    (Mining engineering)   (MLRA 8:10)

[M E N I T O V, V. R.

AUTHORS: Imenitov, V.R., Candidate of Technical Sciences, and Gamberg,
R.M. and Kazikayev, D.M., Mining Engineers

               127-12-1/28

TITLE: Methods of Preparation of Chamber Bottoms and Pillars (Sposoby
podgotovki dnishch kamer i blokov)

PERIODICAL: Gornyy Zhurnal, 1957, No 12, pp 3-8 (USSR)

ABSTRACT: The Zyryanovsk Lead Combine mines from the thick steep-sloping
deposits of very hard ore by breaking off the ore with deep
blast holes. The author describes several mining systems used
in various ore mines and then dwells on the trench undercutting
of chambers which is the system used in the Zyryanovsk mine of
the Zyryanovsk Lead Combine. Citing some technical and
economical indices of this system the author draws the follow-
ing conclusions:
1.   The trench undercutting method is more efficient than the
undercutting with formation of funnels; moreover, the costs of
development opening are reduced.
2.   The formation of trenches by horizontal bore holes is more
economical than their formation by vertical fan-shaped sets of
holes; in addition to this, it achieves more regular outlines
of the trenches which facilitate the subsequent breaking off

Card 1/2

Methods of Preparation of Chamber Bottoms and Pillars   127-12-1/28

the ore in the chambers.
3. The rectangular shape is the best suited for the trench orts.
4. Slopes for the ore outlet with an incline of 50 to 60° are better than vertical ones.
5. If the ore is sufficiently rigid, it is expedient to make wide slits instead of slopes in the trench undercutting system.
6. Funnels formed by means of blasting are to be advanced from below upward for the entire cross section at once.
The article contains 7 figures, and 2 tables.

ASSOCIATION: Moscow Mining Institute (Moskovskiy gornyy institut) and Zyrya-novsk Lead Combine (Zyryanovskiy svintsovyy kombinat)

AVAILABLE: Library of Congress

Card 2/2

IMENITOV, V.R., dotsent, kand. tekhr. nauk; URALOV, V.S., inzh.

First results of modeling block caving by blast. Nauch. dokl.
vys. shkoly; gor. dele no.1:9-14 '59.
(MIRA 12:5)

1.Predstavlena kafedroy rasrabotki rudnykh mestoreshdeniy
Moskovskogo gornogo instituta im. I.V. Stalina.
(Mining engineering)

IMENITOV, V.R., kand.tekhn.nauk; MIL'CHENKO, D.V., gorn.insh.

Principles of large-scale breaking down of ores. Gor. shur. no.8:42-44 Ag '60.

(MIRA 13:8)

1. Moskovskiy gornyy institut (for Imenitov). 2. Zyryanovskiy svint:ovyy kombinat, Vostochno-Kazakhstanskaya oblast' (for Mil'chenko).

(Mining engineering)

IMENITOV, V.R., dotsent

Determining mine productivity in terms of the maximum,
technically feasible extraction. Izv. vys. ucheb. zav.; gor.
zhur. no.9:7-12 '60.
(MIRA 13:9)

1. Moskovskiy gornyy institut im. I.V. Stalina. Rekomend.
kafedroy razrabotki rudnykh mestorozhdeniy.
(Mining engineering)

IMENITOV, Vladimir Rafail vich; KOVALEV, Igor' Antoninovich;
URALOV Vladimir Sergeyevich

[Modeling ore caving and drawing; a manual] Modelirovanie
obrusheniia i vypuska rudy; uchebnoe posobie. Moskva.
Mosk. gornyi in-t, 1961. 150 p.   (MIRA 18:4)

IMENITOV, Vladimir Rafailovich. Prinimali uchastiye: KUTUZOV, D.S.;
FAYBISHENKO, D.I.; ZHIGALOV, M.L.; AGOSHKOV, M.I., retsenzent;
MALKIN, I.M., kand. tekhn. nauk, retsenzent; ALBOROV, Z.B.,
kand. tekhn. nauk, retsenzent; BUBLIS, A.N., gorn. inzh., re-
tsenzent; BUNIN, A.I., otv. red.; SIPYAGINA, Z.A., red. izd-va;
SHKLYAR, S.Ya., tekhn. red.

[Highly productive systems of mining thick hard ore deposits]
Vysokoproizvoditel'nye sistemy razrabotki moshchnykh nesto-
rozhdenii krepkikh rud. Moskva, Gos.nauchno-tekhn.izd-vo lit-
ry po gornomu delu, 1961. 417 p.   (MIRA 15:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Agoshkov).
                    (Mining engineering)

IMENITOV, V.R., doktor tekhn.nauk; GAMBERG, R.M., gornyy inzh.;
KAZIKAYEV, D.M.

Results of tests of the chamber mining system without pillars
on the bottom in the "Zyryanovsk" Mine. Gor.zhur. no.2:18-23
F '63.
                                                        (MIRA 16:2)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki
(for Imenitov). 2. Zyryanovskiy rudnik (for Gamberg, Kazikayev).
            (Zyryanovsk District—Mining engineering)

IMENITOV, V.R., prof., doktor tekhn. nauk; CHIAYEV, T.I., gornyy inzh.;
INFANT'YEV, A.N.

Investigating the behavior of sand and clay depositions in
the mining of iron ore deposits in the Kursk Magnetic Anomaly.
Gor. zhur. no.9:22-23 S '64.   (MIRA 17:12)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki
(for Imenitov, Chiayev). 2. Direktor Yakovlevskogo rudnika
Kurskoy magnitnoy anomalii (for Infant'yev).

IMENITOV, V.R., prof., doktor tekhn.nauk; PUSTOVALOV, A.I.

Method of ore breaking under compression. Gor.zhur. no.12:19-23
D '64.   (MIRA 18:1)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki
(for Imenitov). 2. Glavnyy inzh. rudnika im. XXII s"yezda Kommu-
nisticheskoy partii Sovetskogo Soyuza Zyryanovskogo svintsovogo
kombinata (for Pustovalov).

20802

9.4300 (1043, 1143, 1150)

26.2538

S/181/61/003/003/029/030
B102/B205

AUTHORS: Burdukov, Yu. M., Imenkov, A. N., Nasledov, D. N., and
                Tsarenkov, B. V.

TITLE: Alloyed GaAs junction diodes

PERIODICAL: Fizika tverdogo tela, v. 3, no. 3, 1961, 991-994

TEXT: This is the continuation of Refs. 1-9 which the authors published in
FTT with the exception of Ref. 9 (C. T. Sah, R. N. Noyce, W. Shockley, Proc.
IRE, 45, 9, 1228, 1957). The diodes studied were made from thin plates of
n-type GaAs single crystals which had been grown by the method of
Chokhral'skiy. Their resistivity was 0.02 ohm·cm, their electron concentra-
tion $\leqslant 10^{17}$ cm^{-3}, and their mobility 3500 cm^2/v·sec at room temperature. The
p-n junction was obtained by introduction of molten zinc or from the eutectic
Au-Zn alloy. Lead served as non-rectifying base contact. The area of the
p-n junction was equal to S = 0.005 cm^2. The volt-ampere characteristics of
such a diode at 25 and 300°C are shown in a figure. They were recorded by
the "characteriograph" described in Ref. 10 (Tsarenkov, PTE, No. 2, 144,

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Alloyed GaAs ...

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B102/B205

1960). The most important results were the following: 1) The direct branch of the diode characteristic at voltages below the cutoff voltage can be described by the formula $I_{dir} = I_o \left[exp(qU_{dir}/\beta kT) - 1 \right]$ (1). I_{dir} is the direct current density, U_{dir} the direct voltage drop on the diode, and β a dimensionless factor. I_o increases with rising temperature. Within the range of nitrogen temperatures to room temperature, $I_o(T)$ is a weak function (weaker than at higher temperatures). At room temperature, $I_o \approx 10^{-8} - 10^{-7}$ a/cm^2, and at 300°C, $I_o \approx 10^{-5} - 10^{-4}$ a/cm^2. β decreases with rising temperature within the range of -196-+300°C. At nitrogen temperatures, $\beta \approx 7 - 12$; at room temperature, 2 - 3; and on a further change in temperature, it approaches a value ≮2. The direct branches of the volt-ampere characteristics of several diodes have two exponential sections: $I'_{dir} = I_{o1} exp(qU'_{dir}/\beta_1 kT)$ and $I''_{dir} = I_{o2} exp(qU''_{dir}/\beta_2 kT)$;

$U'_{dir} < U''_{dir}$, $I_{o1} \gg I_{o2}$, $\beta_1 > \beta_2$. I_{o1} and I_{o2} increase with temperature (I_{o2} faster than I_{o1}); at 200-300°C, $I_{o1} \approx I_{o2}$, $\beta_1 \approx \beta_2$. The occurrence of two

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B102/B205

Alloyed GaAs ...

exponential sections of the direct branch is related to the surface proper-
ties of the diode. By a change of the composition of the etching agent, one
of them disappears, and in formula (1) $I_o \simeq I_{02}$ and $\beta \simeq \beta_2$. The existence of
two sections and the disappearance of one section by surface treatment is
ascribed to the fact that the surface of gallium arsenide has an inverse
layer. The cutoff voltage of the direct branch is lower than the contact
voltage calculated according to Shockley's junction theory, and drops with
increasing temperature. The temperature coefficients of the two voltages are
almost equal. The curvature G_8 of the linear section of the direct branch
calculated from the data of the diode with a base 0.5 mm thick amounted to

$\sim 10^3$ a/v·cm^2. The differential resistance at zero voltage can be exactly
calculated from the formula $R_o = \beta kT/qI_o$. $R_o(T)$ is nearly inverse to $I_o(T)$.

R_o of diodes with two exponential sections of the direct branch is much smaller
than R_o of diodes with only one section. The reverse branch of the
characteristics at voltages lower than the breakdown voltage can be described
by the empirical formula $I_{rev} = AU^n_{rev}$, where $n \leqslant 1$; I_{rev} increases with

temperature. The breakdown voltage also increases with temperature, which is

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Alloyed GaAs ...

S/181/61/003/003/029/030
B102/B205

taken as an indication of the electric character of breakdown in low-voltage GaAs diodes. There are 1 figure and 11 references: 9 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR Leningrad (Institute of Physics and Technology, AS USSR, Leningrad)

SUBMITTED: September 23, 1960

Legend to Fig.: Ordinate unit 4 ma, abscissa unit 1 v (left-hand diagrams) or 0.25 v (right-hand diagrams).

Card 4/6

L 18849-65   EWT(m)/EWP(t)/EWP(b)   IJP(c)/RAEM(a)/AEWL/ESD(gs)/ESD(t) * JD

A CESSION NR: AF4043341   S/0181/64/006/008/2281/2288

AUTHORS: Imenkov, A. N.; Meskin, S. S.; Nasledov, D. N.; Ravich, V. N.; Tsarenkov, B. V.

TITLE: Electrical properties of p-n tunnel junctions in gallium arsenide

SOURCE: Fizika tverdogo tela, v. 6, no. 8, 1964, 2281-2288

TOPIC TAGS: gallium arsenide diode, p-n junction, single crystal, tunnel current, temperature dependence, forbidden band

ABSTRACT: Forward and reverse branches of the current-voltage characteristics of p-n tunnel junctions in GaAs were investigated between 77 and 425K. The junctions (10^{-5} cm^2 in area) were produced in single-crystal Zn-doped p-type material by alloying with tin. Direct current or voltage pulses (to avoid heating) were used. The forward (tunnel and recombination) current rose rapidly to a

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ACCESSION NR: AP4043341

maximum at 0.1 V; this was followed by an exponential fall of the current [$I \sim \exp(-qU/\mathcal{E}_1)$] nearly to zero at 0.5--0.7 V and an exponential rise [$I \sim \exp(qU/\mathcal{E}_2)$] on further increase of the voltage. The values of $\mathcal{E}_1$ and $\mathcal{E}_2$ were independent of temperature, which indicated the presence of levels in the forbidden band. The forward current was little affected by temperature due to a weak temperature dependence of the tunnel transition probability and of the Fermi function. The Fermi level at room temperature was ζ_p = 0.08--0.15 eV for the p-region and ζ_n = 0.26--0.32 eV for the n-region. The reverse tunnel current increased, linearly at $U \ll (\zeta_{p,n}/q)$ and quadratically at $U > (\zeta_{p,n}/q)$, with rise of the voltage across the junction. This indicated that at energies $\mathcal{E} \gtrsim \zeta_{p,n}$ the band involved in the reverse tunnel current was parabolic. The reverse

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L 18849-65
ACCESSION NR: AP4043341

4

current varied very little with temperature, again due to a weak
temperature dependence of the tunnel transition probability and of
the Fermi function. "The authors are grateful to F. Kh. Kreyndel'
and G. V. Kuznetsova for help with the work and to R. F. Kazarinov
for a discussion of the results." Orig. art. has: 6 figures and
5 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR,
Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: 10Jan64   ENCL: 00

SUB CODE: EC, SS   NR REF SOV: 004   OTHER: 007

Card 3/3

L 33954-65   EWT(1)/EWT(m)/T/EWA(c)/EWP(b)/EWA(h)   Pz-6/Pob JD/AP

ACCESSION NR: AP5005313   S/0181/65/007/002/06 4/0636

AUTHOR: Imenkov, A. N.; Kozlov, M. M.; Meskin, S. S.; Masledov, D. N.;
Ravich, V. N.; Tsarenkov, B. V.

TITLE: Recombination radiation in GaAs tunnel p-n junctions

SOURCE: Fizika tverdogo tela, v. 7, no. 2, 1965, 634-636

TOPIC TAGS: tunnel effect, tunnel p n junction, p n junction, recombination radiation, recombination, gallium arsenide

ABSTRACT: The dependence of the integral intensity of radiation on the
current I in the range of current densities $50-10^{4}$ amp/cm^{2} can be rep-
resented in the form of the sum of two members $\Phi = \Phi_2 + \Phi_1 = A(T)I^{n} + \Phi_2(T,I)$, where the member $\Phi_2(T,I)$ is the part of the radiation inten-
sity which is added to the intensity Φ_1. The fact that at a certain vol-
tage the ... and the curve of the dependence of
the radiation intensity on voltage display a "hump" indicates that the
excess ... that tunnel transitions contribute to the
... findings of other researchers (e.g., Ander-
son, R., Proc. IEEE, 51, 1963, 610), no radiation in the region of

Card 1/2

L 13056—65

ACCESSION NR: AP005313

... tunnel diode was detected. Orig. art.
has 2 figures and 2 formulas.

ASSOCIATION: ... Fiziko-tekhnicheskiy institut im. A. F. Ioffe, AN SSSR,
Leningrad Physical-Technical Institute, AN SSSR)

SUBMITTED: 11Jul64   ENCLOSURE: 00   SUB CODE: SS AP

                              OTH: 264   ATD PRESS:

Card 2/2

[illegible] EWT(m) [illegible] IJP(c) JD

[illegible]

SOURCE: Fizika tverdogo tela, v. [illegible], no. 3, 1965, 775-780

TOPIC TAGS: gallium arsenide, semiconductor, electroluminescence, p n junction, recombination radiation, radiative recombination

ABSTRACT: An investigation was made of the injection electroluminescence of GaAs [illegible] at temperatures of 77 and 293K. In preparing the diodes, zinc was diffused into an [illegible] monocrystal up to hole concentrations of $\sim 5\cdot 10$[illegible] cm^{-3} in a 10-20 micron surface layer. The tunnel p-n junction was fabricated by diffusing tin into the p-side of GaAs. The emission was found to vary [illegible] Recombination radiation spectra showed a [illegible] was shifted toward higher photon energies [illegible] independent of the injection current [illegible] was observed [illegible]

Card 1/2

L
ACCESSION NO. AP500486

than $1-2 \cdot 10^4$ amp/cm^2 electroluminescence depends on the properties of tunnel diodes, while at lower currents it is determined by the properties of the junction. The current independent peaks were attributed to tunnelling of electrons into deep lying levels in the forbidden band and subsequent radiative recombination. Orig. art. has: 6 figures.   [GS]

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: ...   ENCL: 00   SUB CODE: ... OP

NO REF SOV: ...   OTHER: 006   ATD PRESS: 3196

Card 2/2

L 52003-65   EWP(1)/EWA(h)/T   Peb/Pu-6   IJP(c)   AT
ACCESSION NR: AP5012561   UR/0181/65/007/005/1480/1485

AUTHOR: Inenko, A. N.; Kozlov, M. M.; Nasledov, D. N.; Tsarenkov, B. V.

TITLE: Electron-hole transition in a strongly degenerate semiconductor at very high current densities

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1480-1485

TOPIC TAGS: pn junction, degenerate semiconductor, current voltage characteristic, tunnel diode, recombination zone, gallium arsenide, carrier mobility, carrier life-

ABSTRACT: Formulas are derived for the current-voltage characteristics and for the width of the minority non-equilibrium carrier recombination region in p-n junctions ... degeneracy of the minority carriers ... very large current ... ... that the ... ... recombination re-... ... of these formulas ... ... arsenide doped ... ... current-voltage characteristics by a null method using pulses 2.5—10 μsec in dura-

Card 1/2

L-52003-65
ACCESSION NR: AP5012561

tion. An expression $I \sim (U_b - U_0)^\eta$ is obtained for the dependence of the forward current on the potential-diode voltage, with η depending on the mechanism whereby the non-equilibrium carriers are scattered. This formula was confirmed experimentally in the tunnel diodes at current density $(1.5-50) \times 10^4$ amp/cm^2 and at temperatures 77—425K. The width of the recombination region is found to depend on the injection level and to have the form $l \sim (U_b - U_0)^{\eta-3/2}$. The mobility of the non-equilibrium electrons in the p region is 100—300 cm^2/v-sec, and the lifetime is $(1-4) \times 10^{-9}$ sec at room temperature. At very large current densities the ef-
. . . . . contact potential difference is found to be lower than given by the as-
. . . . between the foll . . . .
. . . . the layer . . . is the barrier . . . .
. . . .
. . . . results . . Orig. art. has: 6 figures and
. . . .

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad
. . . . AN SSSR

SUBMITTED: 06Aug64   ENCL: 00   SUB CODE: SS

NO REF SOV: 001   OTHER: 002   ATD PRESS: 4009
card 2/2

L 3928-66   EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h)   IJP(c)   JD/AT
ACC NR: AP5025399   SOURCE CODE: UR/0181/65/007/010/3115/3118

AUTHOR: Imenkov, A. N.; Kogan, L. M.; Kozlov, M. M.; Meakin, B. S.; Nasledov, D. N.;
Tsarenkov, B. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: The effect of impurities on the recombination radiation of gallium arsenide

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3115-3118

TOPIC TAGS: recombination radiation, gallium arsenide, pn junction, impurity, acceptor, donor

ABSTRACT: The effect of Zn, Cd, Mn, and Fe impurities on the recombination radiation of GaAs p-n junctions was experimentally investigated. The junctions were formed by direct diffusion of the element, by simultaneous diffusion of Mn and Cd and Fe and Cd, or by diffusion of Mn and then Cd, or Fe and then Cd into n-type GaAs with an electron concentration (N_n) of 5×10^{16}—3×10^{18} cm^{-3} (crystals with $N_n > 7 \times 10^{17}$ cm^{-3} were doped with Te). The junction area was 10^{-3}—10^{-4} cm^2. The recombination spectra were measured at 77 and 293K in the photon energy range between 0.7 and 1.6 ev. The spectra were recorded at direct injection currents at which the energy of the short wavelength band was independent of the current. The experimental data are given in Fig. 1 and Table 1. The band with $h\nu_{max} \approx 1.01$ ev (77K) and $h\nu_{max} = 0.95$—0.98 ev
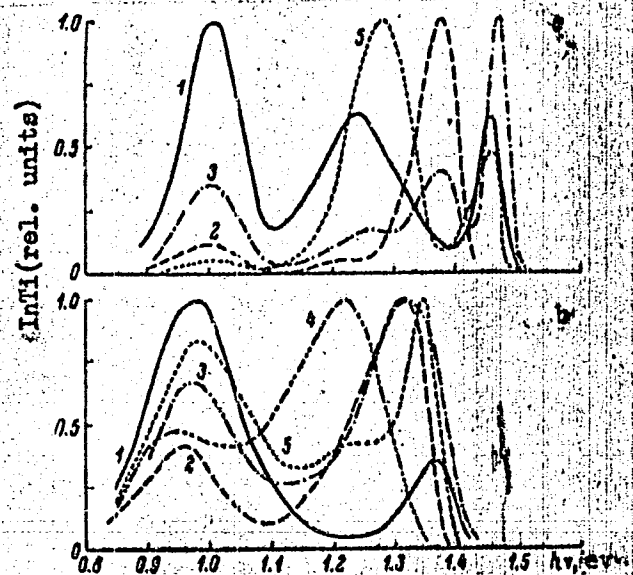
Card 1/4

L 3928-66

ACC NR: AP5025399

Fig. 1. Recombination radiation of n-GaAs p-n junction doped with:

1 - Cd; 2 - Mn; 3 - Mn and then Cd; 4 - Fe; 5 - Fe and then Cd; a - T = 77K; b - 293K. (The absolute values of intensity differ from specimen to specimen).

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L. 3928-66

ACC NR: AP5025399

Table 1. Photon energy in the band peaks ($h\nu_{max}$) and band halfwidths

Impurity	T, °K	Emission Band			
Zn $5 \cdot 10^{16} < n_o < 7 \cdot 10^{17}$ cm^{-3}	77	1.48—1.47 (0.015—0.022)	—	1.27 (0.12)	1.02 (0.12)
	293	1.38÷1.36 (0.035÷0.050)	—	—	0.97 (0.14)
Zn $3 \cdot 10^{18} > n_o > 10^{18}$ cm^{-3}	77	1.47—1.44 (0.022—0.030)	—	1.30—1.26	1.02 (0.12)
	293	1.36—1.36 (0.035—0.050)	—	—	0.97 (0.14)
Cd	77	1.48—1.46 (0.025—0.045)	—	1.25 (0.19)	1.01 (0.12)
	293	1.38—1.36 (0.040—0.060)	—	—	0.97 (0.14)
Mn	77	—	1.39—1.38 (<0.10)	—	1.02 (0.12)
	293	—	1.33—1.32 (0.15)	—	0.96 (0.15)
Mn + Cd	77	≈1.47 (0.045)	1.385 (<0.10)	1.26	1.01 (0.12)
	293	1.37—1.32 (0.14—0.05)	—	—	0.98 (0.15)
Fe	77	—	1.28	—	1.01
	293	—	1.22 (0.18)	—	0.97—0.95
Fe + Cd	77	~1.46 (0.045)	1.28 (0.12)	—	1.02
	293	1.36	1.21	—	0.97 (0.16)

Card   3/4

L 3928-66
ACC NR: AP5025399

(293K) and the band with $hv_{max} \simeq 1.25$ ev, clearly defined only at 77K in junctions doped with Zn and Cd and less sharply defined in those doped with Mn and Fe, were attributed to recombination radiation of excess carriers via the deep levels with activation energies of 0.5 and 0.25 ev, respectively. Orig. art. has: 2 figures and 1 table.   [CE]

SUB CODE: SS/   SUBM DATE: 06May65/   ORIG REF: 003/   OTH REF: 009 /   ATD PRESS: 4/2c

Card   4/4

L 6509-66   EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c)   IJP(c)   JD/GG
ACCESSION NR: AP5019425   UR/0020/65/163/003/0606/0608

AUTHOR: Belle, M. L.; Valov, Yu. A.; Goryunova, A. N.; Zlatkin, L. B.; Imenkov, A. N.; Kozlov, M. M.; Tsarenkov, B. V.

TITLE: Optical and photoelectric properties of single-crystal $ZnSiP_2$

SOURCE: AN SSSR. Doklady, v. 163, no. 3, 1965, 606-608

TOPIC TAGS: optical property, photoelectric property, zinc compound optic material, forbidden band, light polarization, absorption edge, temperature dependence

ABSTRACT: In view of the lack of published data on this compound, the authors have studied the photoelectric and optical properties of n-type single crystals obtained from the gas phase by the method of gas-transport reactions. The spectral sensitivity of the photoconductivity was measured at 77 and 300K using a setup comprising a tungsten incandescent lamp, a light interrupter, a monochromator (IKS-21), amplifier (V2-6), synchronous detector, and electronic potentiometer (EPP-C9). The absorption spectrum was measured with the spectrograph and a camera at 300, 77, and 4.2K. In addition, the authors investigated the influence of polarization of the incident light on both the optical and photoelectrical properties. Photoconductivity was observed at incident photon energies 0.5--2.5 ev. At 300K the photoconductivity has a highly peaked maximum at 2.14 ev, and also maxima at 0.8 and 1.0

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L 6509-66
ACCESSION NR: AP5019425

ev, attributed to impurities. At 77K the maxima shift to 2.19, 1.04, and 0.84 respectively. The spectral photoconductivity curve exhibited also some kinks due to transitions of the electrons from the valence to the conduction band. Polarization began to affect the photoconductivity only above 2 ev, when the photoconductivity became highly sensitive to the direction of the electric vector. This may be due to anisotropy of the crystal. Not all crystals showed a sharp absorption edge, a fact attributed to the number of crystal defects. Where a sharp absorption edge was observed, it showed a dependence on the temperature and on the polarization. The maxima of the photoconductivity and the start of the strong optical absorption were very close to each other, and the sharpness of the absorption edge suggests the presence of direct interband transitions in $ZnSiP_2$. The forbidden band is estimated at 2.13 ev at 300K and between 2.2 and 2.25 ev at 77K. Two absorption bands are observed at 2.23 and 2.27 ev at 77 and 4.2K, and their origin is not clear. This report was presented by L. A. Artsimovich. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute, Academy of Sciences SSSR)

SUBMITTED: 17Nov64   ENCL: 00   SUB CODE: OP, SS

NR REF SOV: 002   OTHER: 001

Card 2/2

IMENKOV, A.N.; KOGAN, L.M.; KOZLOV, M.M.; MESKIN, S.S.; NASLEDOV, D.N.;
TSARENKOV, B.V.

Effect of impurities on the recombination radiation spectra
of gallium arsenide. Fiz. tver. tela 7 no.10:3115-3118 O '65.
(MIRA 18:11)
1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR, Leningrad.

L 04741-67   EWT(1)/EWT(m)/EWP(t)/ETI   IJP(c)   AT/JD

ACC NR: AP6024472   SOURCE CODE: UR/0181/66/008/007/2098/2103

AUTHOR: Imenkov, A. N.; Kozlov, M. M.; Nasledov, D. N.; Tsarenkov, B. V.

ORG: Physicotechnical Institute im. A. F. Ioffee, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Kinetics of radiative recombination of nonequilibrium carriers in GaAs p-n junctions

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2098-2103

TOPIC TAGS: gallium arsenide, radiative recombination, semiconductor carrier, pn junction, relaxation process, spectral distribution, radiation intensity

ABSTRACT: The authors report results of experiments on the dependence, on the current density, of the intensity of radiation for different bands of the spectrum (photon energy range 0.7 - 1.5 ev) of GaAs diffusion p-n junctions, at 77 and 293K, and also results of a simultaneous investigation of the relaxation of the radiation intensity when rectangular current pulses are passed through the junction. The relaxation study is a continuation of earlier work by the authors (Abstracts of Papers of Second All-Union Conference on p-n Junctions, AN LatSSR, Riga, 1964, p. 14) where a long-wave aftereffect was noted after the termination of a square pulse. The GaAs p-n junctions were obtained by diffusion of Zn, Cd, or Cd and Mn jointly. The tests consisted of determining the spectral distribution of the radiation intensity, the variation of the radiation intensity with the current, and oscillograms of the current, voltage, and

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L 04741-67

ACC NR: AP6024472

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radiation-intensity pulses. The current pulses ranged in amplitude from 0.05 to 7 amp and in duration from 10 to 100 μsec. Pulses with duration ~10 nsec were also used. The spectrum consisted of several bands, the presence of which indicates that the recombination of the nonequilibrium carriers goes in part through deep levels. The possible kinetics of such a process are discussed. The current and voltage relaxation time is several orders of magnitude shorter than the intensity relaxation time of the long-wave radiation. The bands with longer wavelength have longer relaxation times. The two bands with the longest wavelength are attributed to recombination of the minority carriers injected over the potential barrier and captured at deep levels. The authors thank O. V. Konstantinov, V. I. Perel', and A. L. Efros for a discussion of the results. Orig. art. has: 4 figures.

SUB CODE: 20/   SUBM DATE: 11Dec65/   ORIG REF: 002/   OTH REF: 002

Card 2/2 ad

IMERLISHVILI, I. A., Cand Med Sci -- (diss) "Study of the plasticity of

and reactivity of articular cartilage under conditions of reparative

regeneration." Len, 1957. 11 pp (Min of Health RSFSR, Len Sanitary-

Hygienic Med Inst), 200 copies (KL, 17-58, 112)

-86-

IMERLISHVILI, I.A.

Experimental study of joint cartilage regeneration [with summary in English]. Arkh.anat.gist. i embr. 34 no.2:58-71 Mr-Ap '57.
(MLRA 10:10)

1. Iz kafedry gistologii i embriologii (zav. - chlen-korrespondent AMN SSSR prof. S.I.Shchelkunov) Leningradksogo sanitarno-gigiyeni-cheskogo meditsinskogo instituta. Adres avtora: Leningrad, 67, ul. Kurakina, d.1/3, Sanitarno-gigiyenicheskiy meditsinskiy institut, kafedra gistologii.
(CARTILAGE, physiol.
regen. of joint cartilage after exper. inj. (Rus))
(JOINTS
same))

IMERLISHVILI, I.A.

Reactive changes in the articular cartilage following deep traumas [with summary in English]. Trudy LSGMI 42:258-273 '58 (MIRA 11:12)

1. Kafedra gistologii i embriologii Leningradskogo sanitarno-gigi-yenichnego meditsinskogo instituta (zav. kafedroy - chlen-korrespondent AMN SSSR, prof. S.I. Shchelkunov).
(CARTILAGE, physiol.
    regen., after deep inj. (Rus))
(REGENERATION (Biology)
    cartilage, after deep inj. (Rus))

DMERLISHVILI, I.A.

Structural plasticity of articular cartilage [with summary in English]
Trudy LSGMI 42:274-282 '58   (MIRA 11:12)

1. Kafedra gistologii i embriologii Leningradskogo sanitarno-
gigieyenicheskogo meditsinskogo instituta (zav. kafedroy - chlen-
korrespondent AMN SSSR, prof. S.I. Shchelkunov).
        (CARTILAGE, physiol.
              regen.,structural plasticity (Rus))
        (REGENERATION,
              cartilage, structural plasticity (Rus))

IMERLISHVILI, T. I.

Imerlishvili, T. I.- "On the algo flora of the Kolkhidak Lowland," Trudy Tbilis. botan. in-ta, Vol. XII. 1948, p. 125-34 (Resume in Georgian), - Bibliog: P. 134

SO: U-4934, 29 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).